WHAT IS CLAIMED IS:

1. In a packet transfer network for conducting packet transfer between a first terminal and a second terminal through a plurality of packet transfer devices provided between the terminals, a label request packet transmission method of transmitting an original label request packet for use in determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer from a transmission side packet transfer device connected to said first terminal and a reception side packet transfer device connected to said second terminal, comprising the steps of:

dividing said packet transfer network into a plurality of sections, and

dividing said original label request packet into a plurality of label request packets each for each said section and transmitting the divisional packets.

2. The label request packet transmission method as set forth in claim 1, wherein

division into said plurality of label request packets each for each said section is conducted by a specific representative packet transfer device at a section to which said transmission side packet transfer device belongs.

3. The label request packet transmission method as set forth in claim 2, wherein

said specific representative packet transfer device transmits said plurality of divisional label request packets each for each said section directly to a plurality of other representative packet transfer devices in the remainder of the plurality of sections in parallel to each other.

4. The label request packet transmission method as set forth in claim 2, wherein

said specific representative packet transfer device transmits said plurality of divisional label request packets each for each said section directly to a plurality of other representative packet transfer devices in the remainder of the plurality of sections in parallel to each other, and

each said representative packet transfer device is disposed at a starting point of a path in the section to which the representative packet transfer in question belongs.

5. The label request packet transmission method as set forth in claim 2, wherein

said specific representative packet transfer device transmits said plurality of divisional label request packets each for each said section directly to a

plurality of other representative packet transfer devices in the remainder of the plurality of sections in parallel to each other, and

each said representative packet transfer device is disposed at boundaries between said sections adjacent to each other.

6. The label request packet transmission method as set forth in claim 2, wherein

said specific representative packet transfer device transmits said plurality of divisional label request packets each for each said section directly to a plurality of other representative packet transfer devices in the remainder of the plurality of sections in parallel to each other, and

each of said plurality of other representative packet transfer devices, upon receiving a label request packet addressed to the device of its own, sequentially transmits, within a section to which its own device belongs, the received label request packet to a packet transfer device belonging to the section in question.

7. A packet transfer network for conducting packet transfer between a first terminal and a second terminal through a plurality of packet transfer devices provided between the terminals, in which a transmission side packet transfer device connected to said first terminal

transmits an original label request packet for use in determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer to a reception side packet transfer device connected to said second terminal, wherein

said packet transfer network is divided into a plurality of partial networks, and

a specific representative packet transfer device in a partial network to which said transmission side packet transfer device belongs includes:

reception means for receiving said original label request packet from said transmission side packet transfer device, and

transmission means for dividing the received original label request packet into a plurality of label request packets each for each said partial network and transmitting the divisional packets.

8. The packet transfer network as set forth in claim 7, wherein

said transmission means of said specific representative packet transfer device transmits said plurality of divisional label request packets each for each said partial network directly to a plurality of other representative packet transfer devices in the remainder of the plurality of partial networks in parallel to each other.

9. The packet transfer network as set forth in claim 8, wherein

each said representative packet transfer device is disposed at a starting point of a path in the partial network to which the representative packet transfer in question belongs.

10. The packet transfer network as set forth in claim 8, wherein

each said representative packet transfer device is disposed at boundaries between said partial networks adjacent to each other.

11. The packet transfer network as set forth in claim 8, wherein

each of said plurality of other representative packet transfer devices includes:

reception means for receiving a label request packet addressed to the device of its own, and

transmission means for sequentially transmitting, within a partial network to which its own device belongs, the received label request packet to a packet transfer device belonging to the partial network in question.

12. In a packet transfer network for conducting packet transfer between a first terminal and a second

terminal through a plurality of packet transfer devices provided between the terminals, a label determination method of determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer, comprising the steps of:

dividing said packet transfer network into a plurality of sections,

dividing an original label request packet for use in determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer into a plurality of label request packets each for each said section and transmitting the divisional packets, and

individually notifying a result of each section which is a response corresponding to said plurality of divisional label request packets.

13. The label determination method as set forth in claim 12, wherein

a result of each said section is all a label allocation packet indicative of an affirmative acknowledgment.

14. The label determination method as set forth in claim 12, wherein

at least one of results of each said section is a state notification packet indicative of a negative

acknowledgment.

15. In a packet transfer network for conducting packet transfer between a first terminal and a second terminal through a plurality of packet transfer devices provided between the terminals, a label determination method of determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer, comprising the steps of:

dividing said packet transfer network into a plurality of partial networks,

transmitting an original label request packet for use in determining a label to be used among said plurality of packet transfer devices for the purpose of said packet transfer from a transmission side packet transfer device connected to said first terminal to a reception side packet transfer device connected to said second terminal,

receiving said original label request packet at a specific representative packet transfer device in a partial network to which said transmission side packet transfer device belongs,

at the specific representative packet transfer device, dividing the original label request packet into a plurality of label request packets each for each said partial network,

directly transmitting said plurality of

divisional label request packets from said specific representative packet transfer device to a plurality of other representative packet transfer devices in the remainder of the plurality of partial networks in parallel to each other,

at each of said plurality of other representative packet transfer devices, receiving a label request packet addressed to the device of its own,

sequentially transmitting the received label request packet from each of said representative packet transfer devices to a packet transfer device in a partial network to which the representative packet transfer device in question belongs,

at each packet transfer device in each partial network, receiving a label request packet transmitted from a representative packet transfer device of a partial network to which the packet transfer device in question belongs,

transmitting a response packet to the received label request packet from each packet transfer device in each partial network to a representative packet transfer device of a partial network to which the packet transfer device in question belongs,

at each of said plurality of other representative packet transfer devices, receiving said response packet from a packet transfer device in a partial network to which the representative packet transfer device in

question belongs,

from each of said plurality of other representative packet transfer devices, directly transmitting said received response packet to said specific representative packet transfer device,

at said specific representative packet transfer device, receiving said response packet from each of said plurality of other representative packet transfer devices,

at said specific representative packet transfer device, synthesizing said received response packets collected and transmitting the synthesized response packet to said transmission side packet transfer device,

at said transmission side packet transfer device, receiving said synthesized response packet, and

at said transmission side packet transfer device, returning a result of determination on a label request based on the received synthesized response packet to said first terminal.

16. The label determination method as set forth in claim 15, wherein

said response packets are all label allocation packets indicative of an affirmative acknowledgment.

17. The label determination method as set forth in claim 15, wherein

at least one of said response packets is a state notification packet indicative of a negative acknowledgment.

18. A packet transfer device for use in a packet transfer network for conducting packet transfer between a first terminal and a second terminal through a plurality of packet transfer devices provided between the terminals, said packet transfer device provided between first and second transmission paths for conducting LDP (Label Distribution Protocol) processing, comprising:

a first LDP multiplexing and separation unit connected to said first transmission path for conducting LDP multiplexing and separation,

a second LDP multiplexing and separation unit connected to said second transmission path for conducting LDP multiplexing and separation,

a packet switch provided between said first LDP separation unit and said second LDP processing unit,

a switch connection table connected to the packet switch for controlling a switch connection state of said packet switch, and

an LDP processing unit connected to said first and said second LDP multiplexing and separation units and said switch connection table for processing an LDP packet separated at said first LDP multiplexing and

separation unit to multiplex a plurality of LDP packets each for each of a plurality of divisional sections obtained by dividing said packet transfer network and sending the multiplexed packet to said second LDP multiplexing and separation unit, as well as updating said switch connection table.

19. The packet transfer device as set forth in claim 18, wherein

said LDP processing unit includes:

a first adjacent LDP processing unit connected to said first LDP multiplexing and separation unit for interpreting an LDP packet separated at the first LDP multiplexing and separation unit and outputting the received contents,

a label determination unit connected to the first adjacent LDP processing unit and said switch connection table for outputting a transmission request according to said received contents from the first adjacent LDP processing unit and an internal state, as well as determining a label value to be used on said first and said second transmission paths to register a combination of the values at said switch connection table,

a second adjacent LDP processing unit connected to the label determination unit for generating and outputting an LDP packet according to said transmission request from the label determination unit,

at least one remote LDP processing unit connected to said label determination unit for generating and outputting an LDP packet according to said transmission request from the label determination unit, and

a packet multiplexing and separation unit connected to said second adjacent LDP processing unit, said at least one remote LDP processing unit and said second LDP multiplexing and separation unit for multiplexing an LDP packet from said second adjacent LDP processing unit and an LDP packet from said at least one remote LDP processing unit and sending the multiplexed packet to said second LDP multiplexing and separation unit.

20. The packet transfer device as set forth in claim 19, wherein

as to an LDP packet from said second LDP multiplexing and separation unit, said packet multiplexing and separation unit allocates LDP packets to said second adjacent LDP processing unit and said at least one remote LDP processing unit according to a label value,

said second adjacent LDP processing unit interprets an LDP packet allocated at said packet multiplexing and separation unit and notifies the contents of the received packet to said label determination unit,

said at least one remote LDP processing unit interprets an LDP packet allocated at said packet multiplexing and separation unit and notifies the contents of the received packet to said label determination unit,

said label determination unit sends a transmission request to said first adjacent LDP processing unit according to the received contents from said second adjacent LDP processing unit and said at least one remote LDP processing unit and an internal state, and

said first adjacent LDP processing unit sends an LDP packet to said first LDP multiplexing and separation unit according to a transmission request from said label determination unit.